FACT SHEET FOR NPDES
PERMIT NO. WA-002193-8

CITY OF CLE ELUM

PUBLICLY-OWNED TREATMENT WORKS

The City of Cle Elum is seeking reissuance of its NPDES permit for its publicly-owned treatment works (POTW). The City of Cle Elum is located in the northwest portion of Kittitas County, Washington, on the north side of Interstate 90, approximately midway between Snoqualmie Pass and the City of Ellensburg. At present, the POTW serves the City of Cle Elum and the Town of South Cle Elum, which lies to the south of Interstate 90.

The City of Cle Elum has tentative plans for development of a regional wastewater treatment system. The regional system is planned to provide wastewater treatment service for Cle Elum, South Cle Elum, the Cle Elum Urban Growth Area, portions of Kittitas County, Trendwest Resorts, and possibly the Towns of Roslyn and Ronald. The City is in the process of negotiating agreements with Trendwest and the other potential parties to provide wastewater treatment; however, at this time, the implementation of regionalization of wastewater treatment services is still uncertain.

In response to the treatment plant's inability to comply with conditions of the previous NPDES permit and the uncertainty associated with regionalization, the City has recently completed an interim upgrade to enable the treatment plant to comply with secondary treatment standards. Improvements include addition of aeration to the stabilization ponds, a constructed wetland to remove suspended solids, and an ultraviolet disinfection system. In addition, the City has made substantial improvements to the collection system, reducing infiltration and inflow approximately 280,000 gallons per day.

This permit requires the City comply with effluent limits based on the secondary treatment standards and implement the monitoring program verifying compliance. In addition, the City is required to submit an operation and maintenance manual, one wasteload assessment and one infiltration and inflow evaluation during the permit cycle. The City must submit a Plan to Maintain Adequate Capacity to establish reasonable design criteria for the present treatment plant. Furthermore, the City is required to take steps to assure compliance with the State Water Quality Standards for ammonia (Schedule of Compliance). Finally, the City must evaluate whether the present unlined treatment ponds are impacting ground water quality or surface water quality (Ground Water Quality Evaluation). In the event the City makes a commitment to carry out the plan to regionalize wastewater treatment service, such reports as the Plan to Maintain Adequate Capacity, the Schedule of Compliance, and the Ground Water Quality Evaluation will be included in the Facility Plan/Engineering Report required for the final treatment plant upgrade.

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GENERAL INFORMATION	
Applicant	City of Cle Elum
Facility Name and Address	City of Cle Elum POTW 500 Owens Road Cle Elum, WA 98922
Type of Treatment	Aerated stabilization ponds, wetland polishing, ultraviolet disinfection
Discharge Location	Waterbody name Latitude: 47° 11' 21" N Longitude: 120° 54' 34" W
Water Body ID Number	WA-39-1030

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the U. S. Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington (State) on the basis of Chapter 90.48 RCW (Revised Code of Washington) which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 Washington Administrative Code), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the State is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This permit contains the technology-based effluent limitations as given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (Federal) and in Chapter 173-221 WAC (State). A preliminary assessment of the discharge's potential for exceedance of the water quality standards for chlorine and ammonia has been made. Where there is a lack of adequate data indicating the discharger's potential for exceedance of the water quality criteria, this permit does not include water quality-based numeric effluent limitations. Based on the Department's preliminary

evaluation, the permit may include monitoring requirements and/or specified measures to control discharges of these toxic pollutants.

One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

This fact sheet has been reviewed by the Permittee and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix C) will become part of the file on this permit and parties submitting comments will receive a copy of the Department's response. This fact sheet will not be revised. Changes to the permit will be addressed in Appendix C--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

History

The City constructed its original Publicly Owned Treatment Works (POTW) in 1948 as a single-cell stabilization pond, primary treatment facility. The POTW was upgraded in 1980 with the replacement of the single-cell pond with three bentonite-lined facultative stabilization ponds. This upgrade also included a new outfall and an extensive sanitary sewer rehabilitation program.

Collection System Status

The collection system consists of approximately 13.0 miles of pipe currently serving an area of 7.4 square miles (South Cle Elum and Cle Elum) and a population of 2,300. The City’s collection system dates back to 1915 and was originally a combined sewer system. Rehabilitation and improvement projects have occurred during 1948, 1969, 1980, and 1993 in order to repair excessive infiltration and inflow (I&I) and separate out the stormwater. The system is composed of vitrified clay, asbestos cement, concrete and PVC pipe. The City's most recent permit application states that, at present, only five percent of the collection system consists of combined sewers.

The City has two primary storm sewers which discharge storm water to a ditch located on the north side of the wastewater stabilization ponds. The storm water ultimately discharges to a natural wetland on the east side of the treatment ponds.

The City of South Cle Elum was connected to the City of Cle Elum collection system in February 1995, by the construction of a sewage lift station, force main and a 12" gravity sewer. The Department had been working with the two cities on this project since the 1970's.

In July 1991, the City submitted its *1991 Sewer System Evaluation Study* to the Department for review. The study was a supplement to the *Facility Plan*. The study identified significant infiltration and inflow in the sewer system that was determined to be the source of the treatment plant's NPDES compliance problems. The study recommended replacement of approximately 5,250 feet of 6-inch and 8-inch diameter collector sewer and 2,400 feet of 15-inch diameter interceptor sewer, and the repair or replacement of 86-88 manholes.

Treatment Processes

The upgraded treatment facilities consist of a headworks with a flow meter, a macerator, and two influent screw pumps. Secondary treatment occurs in a 2-cell facultative stabilization pond system, lined with bentonite, and equipped with mechanical aerators. Pond #1 is 5.4 acres in area and Pond #2 is 4.8 acres in size. Both ponds have normally been operated at a depth of 7 feet.

Following treatment in the aerated lagoons, wastewater receives treatment in the constructed wetland. The wetland is located in what was formally treatment Pond #3. The wetland was constructed with a 60 mil polyethylene liner. The wetland consists of three vegetated areas, separated by two open water areas.

Vegetated stands are planted with thick stands of hardstem bulrush. The primary function of the wetland is to facilitate removal of TSS, although some conversion of BOD is expected to occur. Constructed wetlands remove suspended solids by shading, flocculation, sedimentation and filtration. Oxygen is transferred to the wastewater by wind action and plant photosynthesis. Billions of microorganisms grow on the plant stems and roots, using the dissolved oxygen to degrade organic material. Ammonia and oxygen are converted to nitrogen gas, which is released to the atmosphere.

Open water zones provide natural aeration (via wind action) and decrease the possibility of short-circuiting. These zones are 1.5 feet deeper than the planted areas. During summer operation, the open water zones will have a depth of 3 feet; in the winter, the depth will normally be increased to 3.5 feet. Hardstem bulrush does not normally colonize areas with greater than 2 feet of water depth, so the unplanted zones are expected to remain open naturally, with no operator attention. However, the operator must maintain the proper depths for the system to function as designed.

Partially treated wastewater is then aerated in a specially designed and constructed reaeration chamber. Effluent is disinfected utilizing a low-pressure, high-intensity ultraviolet disinfection

system. The UV system was designed with a maximum flow treatment capacity of 3 MGD, to allow for full build-out of the treatment plant.

In accordance with WAC 173-230-140, the principal treatment plant operator of this system must be, at least, a Class II operator certified by the State of Washington. Before the recent upgrade, the treatment plant was categorized as a Class I system; however, the addition of a wetland treatment component raises the system to Class II status.

Discharge Outfall

Treated and disinfected effluent is discharged from the facility's UV disinfection system via a 1,750-foot long pipe to the Yakima River, at River Mile 180.7, which lies just south of Interstate 90. The outfall is an open-ended 15-inch diameter pipe, ten (10) feet from shore, which is exposed during low flows.

The facility plan recommended that the outfall pipe be extended into the streambed to allow for a submerged discharge and diffuser. However, the City does not intend to upgrade the outfall until the final treatment plant upgrade is implemented.

Industrial Users

According to the information provided by the applicant, there are no major industrial contributors to the applicant's sewer collection system.

PERMIT STATUS

The previous permit for this facility was issued on March 25, 1996. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform Bacteria, Total Residual Chlorine and Total Ammonia.

An application for permit renewal was received by the Department on December 26, 2000 and accepted by the Department on January 17, 2001.

SEPA

The City, acting as the lead agency, conducted a SEPA review of the planned treatment plant upgrade from May 11, 1999 through May 24, 1999. No comments were received during the comment period. Consequently, the City issued a Determination of Non-Significance on May 25, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A compliance inspection without sampling was conducted on March 20, 2001.

The previous permit was issued with a Companion Order, DE 96WQ-C101, that allowed the City time to construct a plant that can achieve full secondary treatment. The Order:

1. established interim effluent limits for residual chlorine and ammonia that were less stringent than those in the permit;
2. required the City to implement improvements to the collection system recommended in a recently completed I&I report;
3. established a schedule to bring the treatment plant up from alternative lagoon standards to full secondary treatment standards by June 1, 1999.

On May 1, 1998, the Order was amended to extend the interim limits and allow the City until June 1, 2000 to comply with the secondary treatment standards. The City had requested the extension to complete additional studies and the associated reviews for the treatment plant upgrade.

On July 21, 1998, the Department sent the City a Notice of Noncompliance documenting permit effluent violations during the previous 12 months. The Notice listed 32 individual violations of effluent limits, mostly BOD_5 and TSS exceedances. The City responded that, due to the lack of effective process controls, inherent in the treatment plant's design, staff were handling the situation as well as possible.

The Department anticipates that the recently completed improvements in the collection system and treatment plant will enable the City to achieve treatment equivalent to the secondary treatment standards.

WASTEWATER CHARACTERIZATION

The tables below contain summaries of the Permittee's influent and effluent data for calendar years 1998 and 1999. Data were extracted from discharge monitoring reports (DMRs) submitted to the Department for these years. Calendar year 2000 data were not used in this characterization due to uncertainty with their validity, because routine sampling was sometimes disrupted by construction.

All DMRs submitted by the City contain the following notation: "Inherent & repetitive conditions: influent and effluent flows are averaged for weekends and holidays. Effluent pH, BOD and TSS mg/L, % removal and lbs discharged are greatly influenced by algae concentrations." However, the Permittee is responsible for the presence of algae in the discharge and the data were incorporated into this characterization.

The permit writer had some concerns about utilizing the City's data due to the sampling method. The City has, until recently, monitored treatment plant influent and effluent utilizing grab

sampling, rather than the more traditional composite sampling. Grab samples are often not representative of actual trends in constituent concentrations. However, design of the interim upgrade utilized the same sampling method and data; therefore, the characterization data were incorporated into this fact sheet. Influent and effluent composite samplers have been installed to monitor the new treatment system.

Influent

The table below contains a summary of influent loading data submitted in DMRs compared to the average wet weather design criteria of the interim treatment plant. Two-year average values are actually an average of the average monthly loadings.

MAXIMUM MONTHLY LOADINGS

Parameter	**Two-Year Average**	**Maximum Monthly Design Criteria[a]**	**% of Interim Treatment Plant Average Monthly Design Criteria**	**Number of Months Design Criteria was Exceeded, 1998-99**
Flow, in MGD	0.606	1.45	42	0
BOD_5, in lbs/day	891	1010	88	4
TSS, in lbs/day	765	945	81	3

a-Source: City of Cle Elum 1997 Facility Plan Addendum, Wetlands Technical Memorandum, dated March 1999. Lowest maximum monthly design loadings listed in the facility plan for BOD and TSS in Table 3.

Compared to the most recent design criteria, which establish the most restrictive (lowest) loadings, the new facility may encounter some significant compliance problems. However, there is some uncertainty with the treatment capacities of the new system, and composite sampling may reveal lower influent loadings.

Effluent

This fact sheet will not address the characterization of the facility's effluent because the treatment performance standard and the associated effluent limits of the upgraded facility are not comparable to that of the old facility. The previous facility utilized unaerated stabilization lagoons that were regulated with alternative performance standards. Alternative treatment standards are significantly less stringent than secondary standards. For instance, the percent removal requirement for BOD established in the previous permit was 65 percent; the secondary treatment standards require 85 percent removal. In addition, the effluent limits established for the old facility were significantly less stringent than those established for the upgraded facility. For these reasons wastewater characterization data are not included in this fact sheet.

PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC) or Sediment Quality Standards (Chapter 173-204 WAC). The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

DESIGN CRITERIA

In accordance with WAC 173-220-130(1)(a), effluent limitations shall not be less stringent than those based upon the design criteria for the facility, which are contained in approved engineering plans, reports, or approved revisions. Also, in accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The permit writer found three somewhat different sets of design criteria in documents describing the flows and treatment capacities of the interim plant, as configured with a wetland. (Two previous documents, the *1991 Facility Plan* and the *1997 Addendum to the Facility Plan*, did not anticipate a wetland treatment process as part of the upgrade; therefore, these documents will not be discussed further in this fact sheet.) The relevant documents are:

1. *City of Cle Elum 1999 Facility Plan Addendum* (henceforth identified in this fact sheet as the *1999 Addendum),* dated April 1999;

2. *City of Cle Elum, Washington Technical Memorandum: Feasibility of Constructed Wetlands-Interim Capacity Wastewater Treatment Project (Memo),* Appendix A to the previous document; and,

3. *City of Cle Elum Wastewater Treatment Plant Interim Improvements Contract* document (Design drawing), specifically sheet G3, dated April 12, 2000.

The *1999 Facility Plan* and the design drawing were prepared by the City's project lead, URS Greiner Woodward Clyde. The *Wetland Feasibility Memo* was prepared by Brown and Caldwell.

1999 Facility Plan

Treatment plant design criteria were based on the peak monthly loadings documented during calendar years 1997 and 1998 and the first few months of 1999. No reserve capacity was assumed in the predicted flow loadings because it was anticipated that, as infiltration and inflow are reduced, influent flows will be reduced accordingly. Reserve capacity of 260 lbs/day was added to the maximum measured BOD loadings to allow for future growth.

Month	Flow, in MGD	BOD, in lbs/day
January	0.95	1,190
February	1.35	1,140
March	1.35	1,135
April	1.03	1,040
May	0.85	1,170
June	0.69	1,040
July	0.53	1,120
August	0.72	1,380
September	0.51	1,080
October	0.60	1,100
November	0.60	1,010
December	0.60	1,200

The main body of the *1999 Addendum* addresses removal of TSS, assuming this will be accomplished with a traditional clarification treatment process, enhanced with chemical coagulation. TSS removal utilizing the constructed wetland is discussed in the appended *Wetland Feasibility Memo*.

Wetland Feasibility Memo

The memo establishes the design annual maximum monthly average flow for the interim system is 1.45 MGD, maximum monthly average BOD load is 1,120 lbs/day, and maximum monthly average TSS load is 1,205. These criteria incorporate reserve capacities of 0.1 MGD flow, 260 lbs/day BOD and 260 lbs/day TSS, to allow for new connections to the system during the interim period (memo, p.14).

The following maximum monthly loading values, which include reserve capacities, appear on the next page of the memo, in Table 3. The following data were extracted from the table:

Month	Flow, in MGD	Total BOD loadings, in lbs/day	Total TSS loadings, in lbs/day
January	1.05	1,190	1,190
February	1.45	1,080	980
March	1.45	1,135	1,000
April	1.13	1,040	1,000
May	0.95	1,170	1,000
June	0.79	1,040	1,000
July	0.63	1,120	1,205
August	0.82	1,380	980
September	0.61	1,080	950
October	0.70	1,100	1,050
November	0.70	1,010	880
December	0.70	1,200	1,090

Design drawing

Design drawing G3 contains the following design criteria:

Parameter	Average Wet Weather	Design Peak
Flow, in MGD	0.8	3.0
BOD, in lbs/day	874	1,140
TSS, in lbs/day	767	965

The drawing does not state whether these are monthly or daily design criteria. Compared with the two sets of design criteria in the previous paragraphs, these criteria are significantly lower.

The Department is concerned that the BOD and TSS loadings to the upgraded facility may already be exceeding these most recent design criteria. The table of average monthly loadings that appears in the *WASTEWATER CHARACTERIZATION* section of this fact sheet indicates that the average wet weather BOD loading criterion for the upgraded facility was exceeded 11 months during calendar years 1998 and 1999. For these reasons, the City is encouraged to actively monitor loadings to the upgraded treatment facility and proactively address exceedances before they occur.

The Department cautioned the City about the high historical loadings compared to the design loadings criteria for the new treatment plant. In his comment letter of the *1999 Facility Plan Addendum*, the Department's Water Quality Engineer warned that historical hydraulic and BOD loadings data were based on weather that was not representative, and that the City "may need some of the reserve capacity to meet existing needs." (Letter of May 10, 1999, from Bob Nolan to Mayor Berndt) In response, the City's consulting engineers responded that I&I reduction work will continue. In addition, they further increased treatment capacity with a more effective type of surface aerator and increased total horsepower. (Letter of May 21, 1999, from URS to the Department)

Due to the lack of historically representative sampling data and uncertainty of the treatment capacity of the constructed wetland portion of the facility, the City will reevaluate the facility during the first two years of this permit cycle and submit a report to the Department for review and approval. The report will be in the form of a Plan to Maintain Adequate Capacity. This permit requirement is more fully discussed on page 19 of this fact sheet.

EXPECTED PERFORMANCE OF THE UPGRADED FACILITY
BOD and TSS

Models were used by the City's consultants to predict upgraded treatment plant performance. Anticipated performances are indicated in percent removals and milligrams per liter (% removal and mg/L), rather than lbs/day, to facilitate comparison with effluent limitations established in Special Condition S1. this permit. The following table was excerpted from Table 4 of the *Wetland Feasibility Memo* and shows anticipated performance of the system at maximum monthly average conditions.

Month	Flow, in MGD	BOD			TSS		
		Pond #2 Soluble BOD_{out}, in mg/L	Soluble BOD_{out} of wetland, in mg/L	% removal across system	Pond #2 effluent TSS_{out}, in mg/L	Wetland TSS_{out}, in mg/L	% removal across system
January	1.05	27.4	14	90.0	27	4	96.9
February	1.45	23.9	14	84.4	26	4	94.5
March	1.45	21.9	11	87.7	30	5	93.8
April	1.13	16.0	7	93.2	28	4	95.8
May	0.95	14.3	5	96.7	28	4	96.6
June	0.79	9.9	3	98.1	39	6	96.3
July	0.63	7.3	3	98.6	71	10	95.7
August	0.82	11.3	3	98.5	67	10	93.1
September	0.61	9.6	3	98.6	64	9	95.3
October	0.70	15.4	3	98.3	39	6	96.9
November	0.70	19.4	6	96.5	31	4	97.1
December	0.70	22.5	7	96.7	36	5	97.3

Ammonia

The *Wetland Feasibility Memo* (pp.19-20) states that ammonia reduction is expected to be significantly enhanced (compared to the old system) because (1) higher concentrations of oxygen in the ponds will promote nitrification, and, (2) alternating aerobic and anoxic zones in the wetland will promote nitrification of ammonia to nitrate and denitrification of nitrate to nitrogen gas.

See CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA, ***Ammonia Considerations,*** in this fact sheet for further discussion concerning compliance with the ammonia effluent limit in this permit.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by Federal and State regulations. These effluent limitations are given in the 40 CFR Part 133 (Federal) and in Chapter 173-221 WAC (State). These regulations are performance standards that constitute "all known available and reasonable methods of prevention, control, and treatment" (AKART) for municipal wastewater.

The following technology-based effluent limits, expressed as concentrations, are based on the requirements of WAC 173-221-040(1-3):

BOD_5	Average Monthly Limit is the most stringent of the following: = 30 mg/L; or = may not exceed fifteen percent (15%) of average influent concentration. Average Weekly Limit = 45 mg/L
TSS	Average Monthly Limit is the most stringent of the following = 30 mg/L; or = may not exceed fifteen percent (15%) of average influent concentration. Average Weekly Limit = 45 mg/L
pH	shall be within the range of 6.0 to 9.0 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 colonies/100 ml Weekly Geometric Mean = 400 colonies/100 ml

The following technology-based mass loading limitations are based on WAC 173-220-130(3)(b) and page V-4 of the Department's *Permit Writer's Manual*. The maximum monthly design flow was established in the *1999 Facility Plan Addendum* (p.14 of 22). Effluent mass loading limits (lbs/day) were calculated as follows:

BOD_5 Monthly Average Effluent Mass Loading Limit =	Maximum Monthly Design Flow x Effluent Concentration Limit x Conversion Factor =	1.45 MGD x 30 mg/L x 8.34 =	363 lbs/day
TSS Monthly Average Effluent Mass Loading Limit =	Maximum Monthly Design Flow x Effluent Concentration Limit x Conversion Factor =	1.45 MGD x 30 mg/L x 8.34 =	363 lbs/day
BOD_5 Weekly Average Effluent Mass Loading Limit =	Average Monthly Effluent Limit x 1.5 =	363 lbs/day x 1.5 =	545 lbs/day
TSS Weekly Average Effluent Mass Loading Limit =	Average Monthly Effluent Limit x 1.5 =	363 lbs/day x 1.5 =	545 lbs/day

Chlorine

The permit requires that chlorine concentrations in excess of that necessary to reliably achieve the fecal coliform limits shall be avoided. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained

after fifteen minutes of contact time. See also Metcalf and Eddy, *Wastewater Engineering, Treatment, Disposal and Reuse,* Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. This concentration shall be used as a guideline for minimizing chlorine usage.

The upgraded treatment plant will utilize a UV disinfection system as the primary method of disinfection; however, the facility will retain the chlorine disinfection system as a backup until the City is satisfied with the performance of the UV system. Therefore, this permit will retain the 0.5 mg/L interim effluent limit from the previous permit, with the understanding that if the City decides to utilize the chlorination system in any other than an emergency basis, the Department reserves the right to reopen the permit and establish a more stringent water quality-based limit. The water quality-based maximum daily limit calculated for the previous permit was 0.02 mg/L.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a State regulation designed to protect the beneficial uses of the surface waters of the State.

Description of the Receiving Water

The facility discharges to the Yakima River, which is designated as a Class A receiving water in the vicinity of the outfall. Characteristic uses include the following:

> Water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

According to the 1998 303(d) list, this segment of the Yakima River is designated as water quality-impaired for the following parameters: 4,4'-DDE, DDT, cadmium, copper, and mercury. Listings were based on sampling conducted by the U. S. Geological Survey (USGS) between 1987 and 1990 for the National Water Quality Assessment Program (NAWQA).

The Department of Ecology's Environmental Assessment Program (EAP) reviewed the draft 303(d) list and questioned the accuracy of the USGS metals data for the Yakima. Metals data generated by the USGS as part of a similar river monitoring program during this period were known to be subject to contamination. Although collected under different protocols, results from the NAWQA study in the Upper Yakima were inconsistent with metals concentrations the Department had measured near the mouth of the river.

In response to the inconsistencies, the Department's Central Regional Office requested that EAP conduct additional monitoring to verify the 303(d) metals listings for the Upper Yakima River. Sampling was completed in January 2000 and the final report issued in June 2000. The report, *Concentrations of 303(d) Listed Metals in the Upper Yakima River,* Ecology Pub. No. 00-03-024, concluded that "all samples analyzed were well within State [water quality] standards for aquatic toxicity." The report recommended that "the upper Yakima River be removed from the 303(d) list for historically reported metals violations in the water column" (p. iii). The Department's study did not address the pesticide listings.

CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA

Critical Conditions

Determination of the reasonable potential for exceedance of the surface water quality standards are made for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

Mixing Zones

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving AKART and in accordance with other mixing zone requirements of WAC 173-201A-100.

This permit does <u>not</u> authorize a mixing zone for the following reasons:

- The facility is out of compliance with the approved Facility Plan, which recommends reconstructing the outfall into a submerged configuration and installing a diffuser;
- The recent site visit (March 2001) found the outfall discharging to an essentially dry portion of streambed, with little or no apparent mixing occurring; and,
- The Department has no water quality models which can simulate a sidebank discharge into a dry streambed and determine the environmental impacts of such a discharge.

If the Permittee does not agree with the determination to withhold authorization of a mixing zone, the City may conduct an Effluent Mixing Study and submit the study to the Department for review and approval. In the event the study is approved by the Department, the dilution factors and resulting water quality-based ammonia limits will be established accordingly.

Chlorine Considerations

Discharges from wastewater treatment plants that use chlorine for coliform control are likely to have a reasonable potential for chlorine toxicity, unless, dechlorination or other chlorine

control methods are practiced at the plant and there is adequate dilution of the effluent by the receiving water.

The City expects to utilize the chlorine disinfection system on a standby basis only, such as if the UV system fails. The Department anticipates such occasions will occur rarely, if ever. The previous permit established a final water quality-based effluent limit of 0.02 mg/L; however, complying with this limit would require installation of a dechlorination system, which would be rarely, if ever, used. With this context in mind, this permit requires compliance with the technology-based limit of 0.5 mg/L during the rare occasions when utilizing chlorine disinfection is necessary. During those occasions when utilization of chlorine disinfection is necessary, the Permittee is required to conduct effluent monitoring for chlorine residual to verify compliance. Because the chlorine contact chamber now serves as part of the UV disinfection system, the outfall pipe is the contact chamber. Therefore, sampling for residual chlorine must occur at the discharge point to the river.

Ammonia Considerations

A reasonable potential determination for exceedance of the ammonia criteria caused by this discharge cannot be made without adequate data on the ammonia concentration in the effluent and data on the flow, temperature, pH, and ammonia concentration in the receiving water under the critical condition. Calculations of the ammonia criteria under various conditions suggest that there is no reasonable potential for exceedance of the water quality standards when the receiving water pH and temperature are below 8 and 68 ^{o}F (20 ^{o}C), respectively, and the acute dilution factor is greater than 10. However, as the background ammonia nitrogen concentration in the receiving water increases to 0.5 mg/L or higher, the reasonable potential analysis suggests the exceedance of the chronic ammonia criteria.

The only known pollutant in the City's discharge with the potential for toxicity in the receiving water, on a routine basis, is ammonia. (Chlorine disinfection will only be used on a standby basis, such as in the event the UV disinfection system is malfunctional.) A preliminary evaluation of the discharge's potential for exceedance of the water quality standards for ammonia was not made because of the uncertainty of the upgraded facility to treat this pollutant.

The previous permit and the associated Companion Order discussed three different effluent limits for ammonia. They were: 1) an interim limit of 19 mg/L, based on the treatment plant's historical effluent concentrations; 2) a water quality-based limit of 12.6 mg/L, which assumes the outfall has been repaired and a mixing zone authorized (chronic dilution factor = 16.1), and; 3) a final water quality-based limit of 2.2 mg/L, an end-of-pipe limit assuming no dilution factor, with a continued sidebank discharge. The Companion Order required compliance with the final effluent limits by June 1, 1999. The amended order extended the compliance date to June 1, 2000.

The *Wetland Feasibility Memo* assumes that the outfall will be repaired and the ammonia effluent limitation in this permit will be in the range of 8 to 12 mg/L. The document

recommended that (1) the outfall be extended into the river and (2) equipped with a diffuser, allowing (3) a submerged discharge. The submerged discharge would facilitate authorization of a mixing zone. However, the City has chosen to postpone reconstructing the outfall until the final upgrade. (If and when the final treatment plant upgrade occurs is largely dependent on whether or not the proposed Trendwest resort comes to fruition and other upcoming decisions regarding regionalism.) During the March 2001 site visit by the Department's inspectors, at low river flow conditions, the treatment plant was discharging to an essentially dry stream bed, with minimal mixing occurring. Table 1 of the memo acknowledges that, without an authorized mixing zone, the daily maximum effluent limit for ammonia will revert to 2.2 mg/L, established as the final effluent limit in the previous permit. The *1999 Facility Plan Addendum* further acknowledges that the outfall will need to be extended and a diffuser attached for the City to comply with the 2.2 mg/L limit (p. 7-8).

There is apparent reasonable potential for exceedance of the ammonia criteria with this discharge, based on statements made in the *1999 Facility Plan Addendum* which are discussed in the previous paragraph. However, effluent data must be collected from the new treatment plant from which a reasonable potential determination can be calculated. Therefore, this permit contains a Schedule of Compliance. The Schedule of Compliance allows the Permittee two years to collect data and determine whether the facility is in compliance with the water quality standards for ammonia. This permit delays establishing ammonia effluent limits for approximately two years after permit issuance, to allow an opportunity to collect representative data of the facility's effluent. (Removal of ammonia is expected to vary seasonally due to the temperature-dependent treatment efficiency of the constructed wetland.)

The Permittee will not be required to collect receiving water data needed for the reasonable potential analysis. Typically, data for such parameters as pH, temperature and flow quantity of the receiving water must be collected by the Permittee, but the Department maintains an ambient water quality monitoring station upstream of Cle Elum, so this data collection task has been already addressed.

COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT

Parameter	**Existing Permit Limits**		**Proposed Permit Limits**	
	Monthly Average	Weekly Average	Monthly Average	Weekly Average
	Technology Based Limits			
BOD	45 mg/L 65 % removal 159 lbs/day	68 mg/L 239 lbs/day	30 mg/L 85 % removal 363 lbs/day	45 mg/L 545 lbs/day

TSS	50 mg/L 65 % removal 156 lbs/day	75 mg/L 234 lbs/day	30 mg/L 85 % removal 363 lbs/day	45 mg/L 545 lbs/day
Fecal Coliform	200/100 mL	400/100 mL	200/100 mL	400/100 mL
pH	6 to 9 standard units		6 to 9 standard units	

	Ammonia and Chlorine Limits			
	Interim	**Final**	**Interim**	**Final**
	Daily Max.	Daily Max.	Daily Max.	Daily Max.
Ammonia	19.0 mg/L	2.2 mg/L	19.0 mg/L	TBD[a]
Chlorine	0.50 mg/L	0.02 mg/L	0.5 mg/L	0.5 mg/L

a-To be determined.

BOD and TSS effluent limits are significantly different in this permit, compared to the previous permit, for several reasons. BOD and TSS effluent limits in this permit, expressed as concentrations, were reduced from the previous permit to reflect implementation of the secondary treatment performance standards for the new facility, as opposed to the alternative lagoon standards of previous permits. Although the concentration limits were reduced, the permitted loadings increased because the treatment capacities and flows of the new facility more than doubled as a result of the just-completed upgrade. In addition, mass loading limits were calculated differently in this permit from the previous permit. BOD and TSS mass loading limits in the previous permit were based on percent removal of the design loadings for these parameters. Limits in this permit are based on the secondary treatment performance standards and the monthly maximum design flow.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground; therefore, no limitations are required based on potential effects to ground water.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring and testing schedule is detailed in this permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual*.

OTHER PERMIT CONDITIONS

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of this permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in Special Condition S4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants.

This permit requires the City to collect and analyze influent hydraulic and organic loading data for approximately two years after permit issuance, with the goal of establishing design criteria that reflect the demonstrated treatment capacities of the facility. The analysis will be in the form of a Plan to Maintain Adequate Capacity, as detailed in Special Condition S4.B., and must be certified by a Professional Engineer in accordance with WAC 173-240-160. The plan must describe the basis of the revised design criteria. The plan may contain the I&I Evaluation and Wasteload Assessment required by Special Conditions S4.D. and S4.E., respectively. In the event the design loadings are determined to be less than 85 percent of actual loadings, the plan will detail the steps the City plans to take to prevent facility overloading.

OPERATION AND MAINTENANCE (O & M)

This permit contains Special Condition S5.E. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

In November 1999 the Permittee submitted to the Department an O&M Manual for the wetland portion of the treatment system. However, virtually every component of the treatment plant was either replaced or significantly modified. Therefore, this permit requires the City to submit,

approximately 6 months after permit issuance, an O&M Manual to the Department for review and approval. The wetland O&M Manual should be incorporated into the new O&M Manual.

INFILTRATION AND INFLOW EVALUATION

Special Condition S4.D. requires the City to assess infiltration and inflow (I&I) in the collection system twice during the permit cycle. The purpose of the evaluation is to quantify and document reductions in I&I after the collection system upgrades the City implemented during the previous permit cycle. The City estimates I&I reductions of approximately 300,000 gallons per day as a result of the rehabilitation projects.

WASTELOAD ASSESSMENT

Special Condition S4.E. requires the City to assess organic loadings to the treatment plant. Annual assessments are required, beginning in the second year of the permit cycle, for several reasons. First, the City has traditionally monitored using grab sampling, which can be unrepresentative of actual loadings. The installation of composite samplers to monitor influent and effluent loadings should provide more reliable data. Second, due to the confusion over the facility's design criteria, annual assessments are necessary to verify that the new system is in compliance with the removal requirements of the secondary treatment standards. Third, the City intends to regionalize wastewater treatment services, and annual assessments will provide necessary information concerning the timing and magnitude of future upgrades.

SCHEDULE OF COMPLIANCE

At this time, it is not known whether the discharge from the interim treatment plant will be in compliance with State's Water Quality Standards for ammonia, dissolved oxygen, temperature and other parameters. Compliance is uncertain for several reasons. First is that the ammonia removal efficiency for the upgraded plant, and especially the constructed wetland, will not be known until two years of influent and effluent data are collected. The ammonia removal efficiency of the wetland, which is expected to vary dramatically with fluctuations in air temperature, will need to be monitored across the seasons to establish baseline data on which final effluent limits can be based.

Second, the accuracy of historical influent and effluent monitoring data is questionable because of the grab sampling method utilized by the City. Third, water quality modeling conducted in support of the *Facility Plan* was done assuming the outfall would be resited back into the river, which has not yet occurred. Furthermore, the Department does not have a water quality model capable of simulating sidebank discharges.

Therefore, this permit contains a Schedule of Compliance, which requires the City to verify that the discharge is in compliance with the State's Water Quality Standards. The Schedule of

Compliance is two-tracked: S8.A. assumes the outfall will remain as is, a sidebank discharge. In this case, the Permittee will utilize the first two years of effluent data, receiving water quality data from the Department's ambient monitoring station, and a water quality model approved by the Department to determine compliance with the water quality standards. The permit requires that all relevant data and the model's input and output sheets be submitted in the form of a report to the Department for approval. The report should also contain a discussion of the study's results.

In the event the City decides, during the first two years of the permit cycle, to resite the outfall into the river, or decides to proceed with the final upgrade of the treatment plant (the regional treatment plant), the Permittee must submit an Engineering Report or Facility Plan addressing the modifications, in accordance with WAC 173-240-060. The Engineering Report or Facility Plan must be submitted at least 180 days before the start of construction and must contain a complete water quality evaluation.

GROUND WATER QUALITY EVALUATION (HYDROGEOLOGIC STUDY)

At this time, it is not known whether Lagoons 1 and 2 are impacting ground water quality. Therefore, Special Condition S9. of this permit requires the City to evaluate any impacts the lagoons are having on ground water quality. However, in the event the City decides to proceed with the final upgrade of the treatment plant, the City may request postponement of this permit condition, pending approval of the Engineering Report or final Facility Plan.

GENERAL CONDITIONS

General Conditions are based directly on State and Federal law and regulations and have been standardized for all individual NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended State or Federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five (5) years.

REVIEW BY THE PERMITTEE

This fact sheet was reviewed by the Permittee for verification of facts. Only factual items were corrected in the draft permit and fact sheet.

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application (PNOA) was published on July 18, and July 25, 2000 in the Ellensburg Daily Record to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) July 2, 2001 in the Ellensburg Daily Record to inform the public that a draft permit and fact sheet were available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (509) 575-2821, or by writing to the address listed above.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--An acronym for "all known, available, and reasonable methods of prevention, control, and treatment" and includes best management practices, as may be stipulated by the Department.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation --The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the Federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Class 1 Inspection--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.

Class 2 Inspection--A walk-through inspection of a facility that includes the elements of a Class 1 Inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Daily Maximum Discharge Limitation--The greatest allowable value for any calendar day.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a collection system through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a collection system.

Interference--A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

1. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
2. Therefore is a cause of a violation of any requirement of the POTW's permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewer sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), sludge regulations appearing in 40 CFR 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through--A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit on the discharge concentration and/or mass of an effluent parameter which is based on the ability of a treatment method, or methods to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate material in a wastewater or effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the discharge concentration and/or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--RESPONSE TO COMMENTS

No comments were received by the Department.